

each of the plurality of client computers comprises:

a page divider for dividing generated print data for each page into a plurality of bands, wherein the generated print data is generated by an application; and

DI a transfer controller for transferring a sequentially selected one of the bands to available ones of print data expanders of the print server computer and the plurality of client computers, said transfer being performed without grouping said bands prior to transfer, wherein expanded bit-map band data by the print data expander of each client computer is transferred to the print server computer,

said available ones of the print data expanders of the print server computer and the plurality of client computers determined by checking a print data expanding process status received from each of the print server computer and the plurality of client computers without first sending a message to request participation to said print server computer and said plurality of client computers; and

the print server computer comprises:

a combiner for combining bit-map band data expanded by the print data expander of the print server computer and the expanded bit-map band data received from at least one of the client computers to produce combined bit-map band data corresponding to the generated print data.

9. The network system according to claim 7, wherein, when receiving a band from another print data expander, each of the plurality of print data expanders expands the received band to bit-map band data, sets a print data expanding process status of a print data expander of its own to unavailable while expanding the received band, and resets the print data expanding process status to available when the expanding process of the received band has been completed, wherein the print data expanding process status is used to determine whether a corresponding print data expander is available.

10. The network system according to claim 8, wherein, when receiving a band from another print data expander, each of the plurality of print data expanders expands the received band to bit-map band data, sets the print data expanding process status of its own to unavailable while expanding the received band, and resets the print

data expanding process status to available when the expanding process of the received band has been completed.

11. The network system according to claim 7, wherein the page divider divides the generated print data for each page into the bands which are numbered from top of a page in sequence.

12. The network system according to claim 11, wherein the combiner receives the bit-map band data expanded by the print data expander of the print server computer and the expanded bit-map band data received from said at least one of the client computers, determines whether the bit-map band data are received in original sequence of the bands, rearranges the bit-map band data in the original sequence when a sequence of the bit-map band data is not identical to the original sequence, and reproduces the combined bit-map band data corresponding to the generated print data.

13. (Amended) A print data control method for a network system composed of a print server computer and a plurality of client computers, comprising the steps of:

at each of the plurality of client computers,

- a) dividing print data into a plurality of sequential bands;
- b) distributing the sequential bands, without grouping the bands prior

to transmission, sequentially over the print server computer and at least one of the client computers, to expand the sequential bands to bit-map band data in parallel among the print server computer and said at least one client computer; said distributing step including selecting an available one of the print server computer and the client computer by checking print data expanding process statuses thereof without first sending a message to request participation to said print server computer and the client computer; and

at the print server computer,

- c) combining the bit-map band data expanded by the print server computer and said at least one client computer to produce combined bit-map band data corresponding to the print data.
-

14. (Amended) The print data control method according to claim 13, wherein the step b) comprises the steps of:

3

at the client computer,
selecting one from the sequential bands in sequence;
transferring a selected band to a selected available computer;
expanding a client-received band to bit-map band data; and
setting a print data expanding client process status to unavailable while
expanding the client-received band and resetting the print data expanding client
process status to available when a print data expanding process of the client-received
band has been completed, and

at the print server computer,
expanding a server-received band to bit-map band data; and
setting a print data expanding server process status to unavailable while
expanding the client-received band and resetting the print data expanding server
process status to available when a print data expanding process of the client-received
band has been completed.

15.

15. The print data control method according to claim 13, wherein the step c)
comprises the steps of:

determining whether the bit-map band data are received in original
sequence of the bands;

rearranging the bit-map band data in the original sequence when a
sequence of the bit-map band data is not identical to the original sequence; and
reproducing the bit-map data corresponding to the print data.

21.

21. (Amended) A network system comprising a print server computer and a
plurality of client computers, wherein each of the plurality of client computers
comprises:

a first print data expander for expanding print data to bit-map band data;
a page divider for dividing generated print data for each page into a plurality of
bands, wherein the generated print data is generated by an application; and
a transfer controller for transferring a sequentially selected one of the bands to
sequentially available ones of print data expanders of the print server computer and
client computers, said transfer being performed without grouping said bands prior to

transfer, wherein expanded bit-map band data by the print data expander of each client computer is transferred to the print server computer,

said available ones of the print data expanders of the print server computer and the plurality of client computers determined by checking a print data expanding process status received from each of the print server computer and the plurality of client computers without first sending a message to request participation to said print server computer and said plurality of client computers; and

the print server computer comprising:

a second print data expander for expanding print data received from at least one of the client computers to bit-map band data in parallel with said first print data expander;

a combiner for combining bit-map band data expanded by the print data expander of the print server computer and the expanded bit-map band data received from at least one of the client computers to produce combined bit-map band data corresponding to the generated print data.

22. (Amended) A client computer in a network system comprising a print server computer and a plurality of client computers, said client computer comprising:

a print data expander for expanding print data to bit-map band data;

a page divider for dividing generated print data for each page into a plurality of bands, wherein the generated print data is generated by an application; and

a transfer controller for transferring a sequentially selected one of the bands to a sequentially available one of print data expanders of the print server computer and other client computers, said transfer being performed without grouping said bands prior to transfer, wherein expanded bit-map band data by the print data expander of the client computer is transferred to the print server computer,

said available ones of the print data expanders of the print server computer and the plurality of client computers determined by checking a print data expanding process status received from each of the print server computer and the plurality of client computers without first sending a message to request participation to said print server computer and said plurality of client computers; and

wherein the print server computer combines bit-map band data expanded by the printer server computer and the expanded bit-map band data received from at least one

of the client computers to produce combined bit-map band data corresponding to the generated print data.

23. (Amended) A network system comprising a plurality of client computers and a server program for instructing a print server computer, wherein each of the plurality of client computers comprises:

a first print data expander for expanding print data to bit-map band data;

a page divider for dividing generated print data for each page into a plurality of bands, wherein the generated print data is generated by an application; and

a transfer controller for transferring a sequentially selected one of the bands to a sequentially available one of print data expanders of the print server computer and other client computers, said transfer being performed without grouping said bands prior to transfer, wherein expanded bit-map band data by the print data expander of each client computer is transferred to the print server computer, and

said available ones of the print data expanders of the print server computer and the plurality of client computers determined by checking a print data expanding process status received from each of the print server computer and the plurality of client computers without first sending a message to request participation to said print server computer and said plurality of client computers; and

the server program comprises the steps of:

expanding print data received from at least one of the client computers to bit-map band data in parallel with said first print data expander;

combining bit-map band data expanded by the print data expander of the print server computer and the expanded bit-map band data received from at least one of the client computers to produce combined bit-map band data corresponding to the generated print data.

24. (Amended) A network system comprising a print server computer, a plurality of client computers and a client program for instructing a client computer, said program comprising the steps of:

expanding print data to bit-map band data;

dividing generated print data for each page into a plurality of bands, wherein the generated print data is generated by an application; and

transferring a sequentially selected one of the bands to available ones of print data expanders of the print server computer and client computers, wherein expanded bit-map band data by the print data expander of each client computer is transferred to the print server computer;

said available ones of the print data expanders of the print server computer and the plurality of client computers determined by checking a print data expanding process status received from each of the print server computer and the plurality of client computers without first sending a message to request participation to said print server computer and said plurality of client computers.

25. The network system according to claim 7, wherein when one of said print data expanders finishes expanding a transferred band of print data, then the one of said print data expanders notifies the transfer controller that the one of said print data expanders is available, and if the transfer controller has not already transferred each of the plurality of bands, then the transfer controller transfers a next sequential one of the plurality of bands to the one of said print data expanders.

26. The network system according to claim 21, wherein when one of said print data expanders finishes expanding a transferred band of print data, then the one of said print data expanders notifies the transfer controller that the one of said print data expanders is available, and if the transfer controller has not already transferred each of the plurality of bands, then the transfer controller transfers a next sequential one of the plurality of bands to the one of said print data expanders.

27. The client computer according to claim 22, wherein when one of said print data expanders finishes expanding a transferred band of print data, then the one of said print data expanders notifies the transfer controller that the one of said print data expanders is available, and if the transfer controller has not already transferred each of the plurality of bands, then the transfer controller transfers a next sequential one of the plurality of bands to the one of said print data expanders.

28. The network system according to claim 23, wherein when one of said print data expanders finishes expanding a transferred band of print data, then the one of said print data expanders notifies the transfer controller that the one of said print

data expanders is available, and if the transfer controller has not already transferred each of the plurality of bands, then the transfer controller transfers a next sequential one of the plurality of bands to the one of said print data expanders.

29. The network system according to claim 24, wherein said program further comprises the step of:

receiving a notification from one of said print data expanders when the one of said print data expanders finishes expanding a transferred band of print data, and after receiving said notification, transferring a next sequential band of print data to the one of said print data expanders if each of the plurality of bands have not already been transferred.